

LEARNING THROUGH GARDENING: THE HORTIS EXPERIENCE

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Abstract

Urban gardens have many different and important functions in the actual society: from the food production to social, educational and therapeutic functions. Urban horticulture was extensively practiced during the '70 and '80 and, after a period of shade in the '90, has come back into favour recently, when a large group of urban population is experiencing precarious income and underfeeding, as a form of self food production. Social and therapeutic functions of urban horticulture are nowadays widely recognized and used, in particular for the support and rehabilitation of disadvantaged persons. On the other side, the educational role of horticulture is recognized from 2002 by the FAO School Garden concept note, that stated the importance of school gardens to increase "the relevance and quality of education through active learning". The European project HORTIS – funded by the European Union in the framework of the Lifelong Learning Programme – Grundtvig sub-programme - groups together experiences of urban community gardens all over Europe for the implementation of an innovative methodology and training tools to foster the acquisition of key competences for lifelong learning. In the present work, the main outcomes of HORTIS will be illustrated, with the main aim of providing an inter-disciplinary approach to strengthen the role of urban horticulture in the adult learning, especially with the aim to increase the life quality of unemployed or jobless adults and to explore the relationship between community gardening and key competences acquisition. In particular the positive effects of practical urban gardening activities will be illustrated especially in enhancing social cohesion and mutual help, in increasing the sense of belonging to the community and self-esteem, thus encouraging acquisition of transversal key competences. The innovative character of the HORTIS approach lies in its focus on gardening activities, supported by a specific teaching methodology and a set of high-quality educational materials, that combine self-food production techniques with informal teaching approaches aimed at the acquisition of new skills, and especially transversal key competences such as: learning to learn, spirit of entrepreneurship and civil and social competences.

Keywords: Urban horticulture, Urban agriculture, Adult education, Lifelong learning.

1 INTRODUCTION

HORTIS - Horticulture in Towns For Inclusion And Socialization - is a project funded by the Lifelong Learning Programme, sub-programme GRUNDTVIG with the aim to fight social exclusion, poverty and unemployment, as well as to promote lifelong learning among adults, through community and urban gardening. HORTIS is coordinated by the Department of Agricultural Sciences – Alma Mater Studiorum University of Bologna and realised in cooperation with partners from Italy, Germany, Hungary and Spain. The project main objectives are:

- To train a new generation of trainers on community gardening able to set up and run community gardens, attracting and engaging the local community. "Community gardeners" are within the project recruited among unemployed, under-employed or temporary employed adults, retired persons, male and female, volunteers, members of associations for the promotion of urban agriculture and / or social inclusion, social workers, cultural mediators, etc.
- To engage unemployed adults, in particular those with low-skills, who often are discouraged to find a job and experience precarious income and underfeeding, in training courses on how to create and maintain an urban and community garden. HORTIS offers them a concrete opportunity to acquire new skills and competences not only linked to gardening but also on a lifelong learning perspective, such as transversal key-competences like Learning to Learn, Spirit of Entrepreneurship, Social and Civic competences.
- To realize and distribute a tool-kit composed by promotional videos and guidelines on how to create a little garden and a kit of seeds ready to be sown.

Within this paper, the European Framework on Key Competences and the basic concepts of adult education and Lifelong Learning, as well as Learners' Centered Methodologies and Participatory Methods will be introduced and particularly linked to urban horticulture experiences in education. Then the relationship between gardening and the acquisition of key competences for lifelong learning will be explored, paying particular care to the transversal ones: Learning to Learn, Sense of initiative and Entrepreneurship, Social and Civic competence. In the final part the paper, the HORTIS training course is described, including methodological and organisational aspects.

1.1 The european framework on key competences

In March 2000, the Lisbon European Council set a strategic goal for European Union to become "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" [1]. To meet the demands of the knowledge society and to improve the level and the quality of employment, Europe's education and training systems should be innovated and new basic skills promoted among all European citizens. In 2001 the report 'The concrete future objectives of education and training systems' was adopted by the Stockholm European Council, which identifies three strategic objectives (quality, access and openness of the education & training systems), broken down into 13 associated objectives, to be achieved by 2010. To achieve these objectives a detailed work programme was adopted by the Barcelona European Council in 2002 and a list of basic skills for European citizens extended to include: literacy and numeracy (foundation skills), basic competences in mathematics, science and technology, ICT and use of technology, learning to learn, social skills, entrepreneurship and general culture. In 2004 the working group on Key Competence was established with the objective to identify and define the new skills and how they could be better integrated into curricula, maintained and learned through life, with a particular focus on less advantaged groups, people with special needs, school dropouts and adult learners. In 2006 the European Framework for Key Competences for lifelong learning, was published which identifies and defines the key abilities and knowledge that everyone needs in order to achieve employment, personal fulfilment, social inclusion and active citizenship and to adapt flexibly to a rapidly changing and highly interconnected world. The Recommendation of the European Parliament and of The Council of 18 December 2006 on Key Competences for Lifelong Learning defines the competences "as a combination of knowledge, skills and attitudes appropriate to the context" [2].

1.1.1 Definition of key competences addressed by HORTIS

Key competences represent a transferable, multifunctional package of knowledge, skills and attitudes that all individuals need for personal fulfilment and development, inclusion and employment. These should have been developed by the end of compulsory schooling or training, and should act as a foundation for further learning as part of lifelong learning. This definition stresses that key competences should be transferable, and therefore applicable in many situations and contexts. They are also multifunctional, e.g. they can be used to achieve several objectives, to solve different kinds of problems and to accomplish different kinds of tasks. Key competences are a prerequisite for adequate personal performance in life, work and subsequent learning. The EU framework includes competences in 'traditional' subjects, such as mother tongue literacy, numeracy, knowledge of foreign languages, science and IT skills. But it also covers other skills, such as learning to learn, social and civic competence, initiative-taking, entrepreneurship, cultural awareness and self-expression. Initial education and training systems across the EU should support the development of these competences in all young people, and adult education and training need to give real opportunities for all adults to continually build and maintain their skills. Even if all the above listed competences could be acquired and fostered through activities linked to gardening, the HORTIS project focuses on the transversal key - competences that can be considered particularly relevant with regards to the educational function of urban and community gardens, and namely: Learning to Learn, Sense of initiative and Entrepreneurship, Social and Civic competences. HORTIS refers to the definition of these competences provided by the Recommendation of the European Parliament and of The Council of 18 December 2006 on Key Competences for Lifelong Learning, and namely:

LEARNING TO LEARN: It comprises the disposition and ability to organise and regulate one's own learning, both individually and in groups. It includes the ability to manage one's time effectively, to solve problems, to acquire, process, evaluate and assimilate new knowledge, and to apply new knowledge and skills in a variety of contexts — at home, at work, in education and in training.

SOCIAL COMPETENCES: cover all forms of behaviour that one must master as an individual in order to be able to participate in an efficient, constructive way and resolve conflict in social life, in interaction with other individuals (or groups) in personal, family and public contexts.

CIVIC COMPETENCES: the scope of civic competences is broader than that of interpersonal competences by virtue of their existence at societal level. They can be described as the set of competences that allow the individual to achieve participation in civic life.

ENTREPRENEURSHIP: it has an active and a passive component: the propensity to bring about innovation oneself, but also the ability to welcome and support innovation brought about by external factors. Entrepreneurship includes welcoming change, taking responsibility for one's actions (positive or negative), setting objectives and meeting them and having the motivation to succeed.

1.2 The HORTIS approach

1.2.1 Learning through gardening

Urban gardens play an important educational function. School gardens are spread in many countries and used to complement the school curriculum with outdoor education, to enhance children's health and well-being, to reconnect children with nature and to the source of their food, as well as to teach several subjects. The philosophy behind garden-based education is actually an amalgamation of the philosophies behind experiential education, ecological literacy and environmental awareness, and agricultural literacy. In other words, it involves teaching children through personal discovery in natural settings, where they learn ecological principles that govern all life, as well as develop a sense of connection with the land. Garden-based learning offers an ideal context for integrated learning. An integrated curriculum is often associated with real-life problems in contrast with a traditional subject-based curriculum. This provides a vehicle for higher order thinking as students are challenged to move beyond memorization, to see patterns and relationships and pursue a topic in depth [3]. Gardening is "linked to enhanced physical, emotional, social, and spiritual wellbeing, and can be a coping strategy for living with stressful life experiences" [4]. "We grow much more than plants in our gardens by incorporating principals of children and youth development, adult education and community building appropriately into all aspects of a garden-based program including planning, designing, planting, maintaining, harvesting and recruiting further support". The 4 themes of positive youth development, developed by Dr. Cathann Krees from the Cornell University Cooperative Extension and Department of Horticulture, guide gardening activities to allow the simultaneous grow of crops and people, with special regards to personal and relational skills [5]. They have been developed for children and youth development but can be applied to other target groups, including adults and seniors. The 4 themes of positive youth development are:

- **Mastery:** Learning by doing "I can". A lot of knowledge and skills can be learnt while gardening, and in a variety of ways: Hands-on activity, experiential learning, group investigation, and discovery are the very stuff of gardening.
- **Belonging:** Cultivate relationships "I belong". Gardening represents an opportunity to establish new relationships with the community and especially with people from different social contexts.
- **Generosity:** Gestures of thoughtfulness & shared responsibility. "I can make a difference". Taking care of plants and flowers, take responsibility for others, sharing fruits, are ways to contribute to the community, makes people feel better and increase self-confidence and well-being.
- **Power:** Authentic engagement & decision-making "I matter". Gardening can represent for children, youth, but also for people in a disadvantaged or weak situation due to employment, age and other factors a unique opportunity to experience self-governance and decision making power, with respect to garden planning, design, implementation and maintenance.

These 4 themes can be applied also to adult education and in particular to the acquisition of Key Competences, and more specifically the transversal key competences: Learning to Learn, Interpersonal and civic competences, Entrepreneurship. These competences in fact are strongly linked to the above mentioned themes and can be fostered through community and urban gardening, as follows:

LEARNING TO LEARN – MASTERY: In the garden learning starts from concrete problems and happens in form of solutions. Gardening thus enhances:

- self-confidence: I'm proud of my harvest
- group-confidence: we can overcome difficulties together
- willingness to acquire new competences & to improve results: I want to learn new techniques, I want to do better next year
- adaptability: I know how to adapt the rules to the real context; ability to adapt expectations to results, etc.
- etc.

SOCIAL COMPETENCES- GENEROSITY: Community gardening gives gardeners the opportunity to:

- to take care of other living being: *our plants*
- to develop positive relationship with other people, to overcome loneliness
- to help other people, e.g. by sharing with them our products
- to work side by side with people from different backgrounds, social contexts and with people of different ages, thus overcoming prejudice
- etc.

CIVIC COMPETENCES - BELONGING: Civic competences are encouraged by community gardening as they give gardeners the chance to:

- overcome and understand differences: by working side by side with people of different age or from different religious and ethnic groups
- take responsibility of something: my balcony...our allotment ... *The planet Earth!*
- feel as a part of a broader community
- experience the higher efficacy of group work over that of an individual
- stay active, even if you are old, retired, unemployed...
- etc.

SENSE OF INITIATIVES AND ENTREPRENEURSHIP- POWER: Urban and community gardening encourage gardeners in:

- planning and implementing an initiative / project from the beginning
- taking relevant decisions together with other people
- overcoming obstacles finding strategies and solutions
- etc.

HORTIS methodology and model have been developed to encourage gardeners to become aware of the educational function of urban horticulture and to be able to promote the acquisition of these competences either at individual and community level.

2 METHODOLOGY

The HORTIS training course model is learners' centred and applies the modern principles of andragogy developed by Knowles [6]. This means that it takes into consideration the characteristics of adult learners in general, and specifically those of the individual participants in the courses. Special attention is given to valorise the variety of experiences, both in terms of working life and educational backgrounds, that each adult brings, as it impacts on the effectiveness of the learning experience. In fact adults have a range of different motivations for participating in a training course; these can be linked to professional advancement purposes, to personal development, to a specific skill / knowledge need, or simply to interest and hobby. To detect, know and meet this motivation is a critical factor for the success of a learning experience. Furthermore, adults might have a lot of anxieties especially about learning and returning to an educational environment, which if not managed correctly, can impair the learning process. These anxieties may be the legacy of their prior experience of education, or as a result of an extended absence from an educational environment. Examples of anxieties that might arise include: Fear of failure, ageing concerns, fear of the new technological environment, concern about their ability to contribute and make intelligent/worthwhile inputs in classroom

discussion. Garden is an ideal place for adult learning and especially to strengthen motivation and overcome anxieties of learners.

HORTIS has developed a specific methodology that combines elements from different learners' centred approaches and methodologies, such as:

- active learning: by fully and actively involving students in cooperative learning, through project and group work
- experiential learning: by starting and impacting on concrete experiences through reflection and conceptualisation
- popular education: by applying the 'spiral model' of learning that was developed and practiced by the Doris Marshal Institute in Toronto, which emphasises reflecting on experience and incorporating new information in action.

HORTIS also applies and encourages the use of participatory methods in all the activities linked to urban horticulture and in particular in the creation and development of community garden projects, as they enable people to play an active and influential part in all aspects and decisions that influence their life. Participatory methods are particularly effective in these settings, as they address people with different social and economical backgrounds and at all stages of project cycles and community mobilisation: they can help with analysis, collective decision making, planning, reflection and accountability.

2.1 The HORTIS model

The HORTIS model of training course has been developed by taking into consideration the adults learners characteristics, motivation and anxieties and according to the aim of promoting inclusion and socialisation of disadvantaged groups of population. Therefore, the HORTIS course model main elements included:

- a course schedule which is accessible to different typologies of learners and doesn't hinder anyone to participate
- set of tools and criteria for the selection of participants which allow to identify participants motivation and background, with the aim to select those who are in line with the HORTIS aim and to compose an heterogeneous and motivated group of participants
- in class activities that encourage active participation of all group members, through active learning, cooperative learning and learning by doing methods, as well as through the organisation of practical workshops, study visits, etc.
- community garden project labs which involve group work of participants engaged in designing, planning and implementing community gardens and making use of participatory methods.
- Organisation of optional social events that encourage the group cohesion and socialisations among persons from different ages, backgrounds, etc.

2.2 Selection of participants

HORTIS training course addressed adults that are motivated by a need of a personal development, both in terms of acquisition of new skills which will benefit the local community and of new knowledge linked to a subject they are interested in (gardening). Priority was given to unemployed or jobless people, which are not only interested in finding a job but "in doing something useful for the community". HORTIS wants to encourage the dialogue and collaboration among persons from different backgrounds and ages, and for these reasons pays particular attention to have an etherogeneous composition of the participants group. Consistently, participants were requested to prepare a registration form, a motivation letter and optionally a CV. Given that requests were about 10-folds higher than the places available, a selection process was required, which was based on a range of criteria (e.g. motivation letter in line with the course objectives, employment status, interest and experiences in social inclusion and education, abroad experiences, project management and design experiences and agricultural background).

2.3 Course programme

Training needs were addressed in a specific survey involving 164 people active in urban horticulture in Italy, Spain, Hungary, Germany and Austria. Upon detected training needs, the course schedule was formulated and discussed among project partners in order to prepare a common curriculum which nationally would be adapted to locally perceived requirements. The HORTIS training course for trainers programme covered a variety of subjects linked to the multifunctional aspects of urban and community gardening:

- Ecological Management of Community Gardens
- Urban Horticulture and Food Security
- Community Gardens: Social – Educational Aspects
- Communication and promotion
- Urban Green Infrastructures (Roof Gardens, Vertical Walls, Soilless Horticulture, Etc.)
- Urban Biodiversity
- Indoor Gardening

The course programme included also activities such as

- Practical workshops on different techniques and aspects: hydroponic systems, compost, beekeeping, etc
- Community garden projects labs: group work on different community garden projects to be realized by participants (in groups or individually).

2.3.1 Course modules

HORTIS modules have a different duration on the basis of the subject, the number of teachers involved, the course formula applied, e.g. if intensive, if weekly, or workshop-based. Each HORTIS module contained:

- a warm up: e.g. presentation of the teacher and the subject of the module. It could be organized in form of ice-breakers, e.g. asking participants what they know or think about the module subject, or in form of game to activate participants 'interest towards the subject.
- a short lecture or presentation on the subject.
- an activity: this could be an hands-on lab, a practical workshop, a group work, etc. This should be designed to give participants the opportunity to practice what they just learned and to keep them engaged and moving, such as small groups work to complete a task or to discuss an issue.
- Debriefing: presentation and discussion of the results of the activity, followed by a break .

Normally a module is 50 minutes long, but in case of an intensive course formula or when needed by the subject, it could be about 100 minutes long, with a 30-40 minutes lecture followed by an 1 hour practical activity / hands-on lab or group work. If group work is taking place, each group is asked to present the results of the work / discussion to the whole course group. In case of collective hands-on activity, a general discussion about what was learned during the activity can be encouraged, through questions and common reflection.

2.4 Group work & Community Garden Projects Labs

The group work is a k-element of the HORTIS course, and it is especially used in the practical labs about community garden projects, which in fact foresees group work on different community garden projects to be realized by participants. Working in groups provides an opportunity for learners to work closely with their classmates. The main benefits of group work are that it allows an active involvement of participants, facilitates the exchange of ideas and opinions, promotes team working skills, requires learners to deal with conflict, ensures co-operation on the delegation of tasks, etc.

The Community Garden Projects Labs starts with the beginning of the course in form of different working groups developing a project of community garden. The projects are gradually developed by the groups taking into consideration the knowledge acquired in the different topics of the course programme, which are immediately "used" to answers questions and to meet the needs of the projects

(e.g. how the elements of urban garden management will be applied to the “future” community garden? ; How the local community could be involved in the project? How the community garden will be communicated? Etc.).

Participants are guided by a concept template to be enriched step by step with new information and elements, as to form a complete and detailed project of community garden.

The template includes the following items:

- Description of the project: how the garden will be managed, the objectives, what will be sown, which systems will be used, etc.
- Place: where, in what area of the town and what type of garden (on a roof, on a square, on a school, etc.)
- Main function: what is/ are the most important function/s the future garden will play?
- Beneficiaries: who are the persons that will directly benefit from the garden? And indirectly
- Community building: what methods will you apply to involve and build the community?
- Budget: how much the garden will cost?
- Possible funders? Who might fund the garden?

To this template a work plan addressing all organisational, legal and communication steps to be done for the creation of the garden was added.

2.5 Follow up of the course

After the end of the course, the groups work doesn't end but participants keep working on their projects with the aim to realize them, with the support of the HORTIS course teachers and project team, if needed. Of course not all the groups continue working and not all the community garden projects are realised. Nevertheless even if a garden project does not come true in the short period, it becomes a sort of “box” of common experiences and knowledge acquired for the persons that have designed and planned it.

3 RESULTS AND FUTURE PERSPECTIVES

The Fig. 1 illustrates the current project outcomes as related to the educational process.

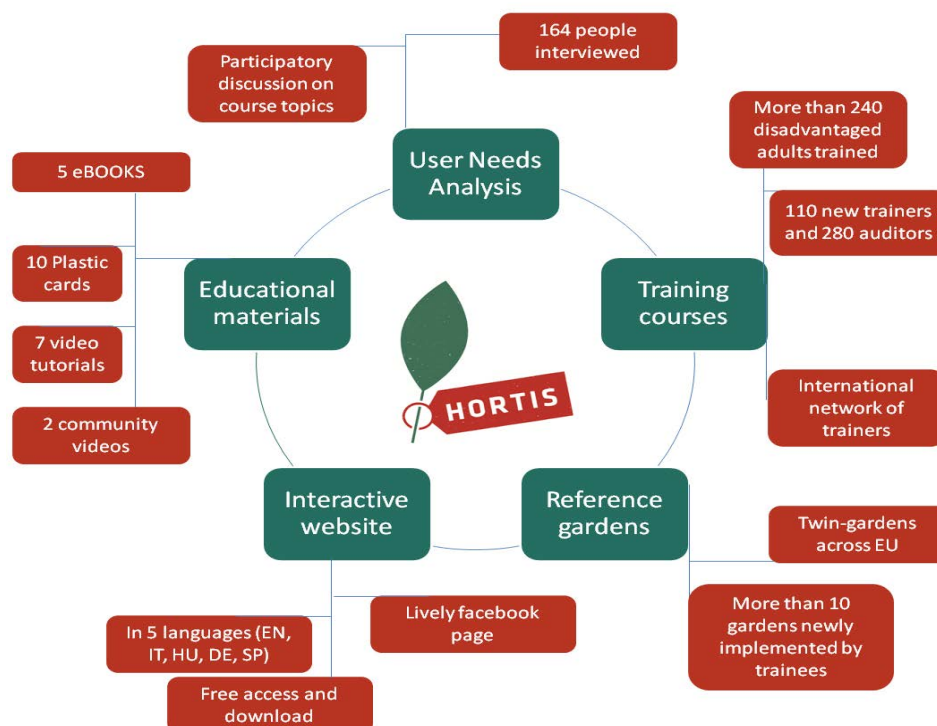


Fig. 1. Main HORTIS project outcomes (in green) and figures (in red).

3.1 HORTIS website

The HORTIS web site - <http://www.hortis-europe.net> - has been developed and is online in five languages (EN, DE, ES, HU, IT). It includes information on the project's partners, aims and activities and gives access to all project results and outcomes. The web site it is linked to a dedicated Facebook page https://www.facebook.com/pages/Hortis/610969108932020?ref_type=bookmark and to other social networks and it includes a news sections and a links page with useful information on urban horticulture issues in the partner languages.

3.2 HORTIS courses

In the first year of the project, a training courses for trainers was implemented, focused on garden techniques as well as on social and educational aspects of urban horticulture in each partner city (Berlin –DE; Bologna-IT; Budapest- HU and Cartagena-ES), involving in total 110 participants for about 80 hours of theoretical and practical lessons on the field, Additional 280 persons have been involved as listeners to the individual lessons of the courses. In the second year, trainers were requested to implement further courses mainly addressing socially disadvantaged people. To date, about 240 people participated to this technical training.

3.3 HORTIS educational materials

Hortis educational materials are in different formats and on different subjects and themes, according to the main contents of the course programme. They are available on the dedicated section of the Hortis web site (www.hortis-europe.net). They include:

- eBooks (pdf) easy to read, rich in technical and practical information on different aspects of urban and community gardens. They address the following topics: 1) Sustainable community gardening in cities; 2) Sustainable Urban Garden Management; 3) Urban Garden Cultivation Systems; 4) Simplified soilless systems; 5) Zero km Agriculture.
- Plastic Cards. This material is intended to be used on the field, for interactive learning. They include visual, easy and practical “how to” instructions on ten selected topics related to gardening activities.
- Video Tutorials: these videos include short, clear and practical instructions on several different activities. They complement the plastic cards.
- Community Video. These videos are generally shot by users, course participants, project partners, etc. They mainly address the social aspects of gardening (e.g. the story of our garden).

All HORTIS educational materials and public outcomes are available for free download on the HORTIS web site at the Download Area.

3.4 Future perspectives

All HORTIS results are aimed at promoting urban and social horticulture as tool for education and inclusion, within the broader aim of contributing to the achievement of the EUROPE 2020 priorities of a SMART, SUSTAINABLE and INCLUSIVE growth of Europe:

SMART: as urban gardening encourages people to learn and to stay active, either elder and young people with low skills qualification.

SUSTAINABLE: as urban gardens, even the smaller one, make cities greener and more liveable, contribute to protect the environment, to prevent biodiversity loss and improve food security, promote healthy life style and well informed consumers' choices.

INCLUSIVE: because social and community gardens promote social inclusion and territorial cohesion, also representing an opportunity for people with low skills or in disadvantaged situation to get involved in the community, to acquire new competences, as well as to overcome economics difficulties by growing their own food.

Furthermore social gardening is a powerful tool to encourage conscious consumption and positive attitudes towards food and earth products, as well as awareness of related environmental and ethic issues by this way contributing to the achievement of the general **Lifelong Learning Programme**

objective to develop “an advanced knowledge-based society, with sustainable economic development, more and better jobs and greater social cohesion, while ensuring good protection of the environment for future generations” [7].

In line with these aims, in the next period the HORTIS partners will strengthen dissemination and exploitation activities, respectively to promote the project and its results among the population and to allow the project results affecting education and social policies at regional, national and European level. With these purposes, during 2014, several events (in form of workshops, conferences, seminars, etc.) will be organised either at national and international level, addressing stakeholders, experts, civil society organisations and end users. A promotional video will be produced and diffused together with a toolkit composed by short guidelines on how to create an urban and community garden and a kit of seeds. The HORTIS web site and the HORTIS training gardens will be kept active and alive after the end of the funding period with the aim to promote urban and social horticulture as a powerful tool for education and social inclusion.

Beyond the project’s end, HORTIS partners will keep working together not only at the promotion and the development of community and urban gardens at national level, i.e. in the partner countries, but also at encouraging connection and networking at transnational level, stimulating cooperation and exchange of ideas and practices among different countries, by this way contributing through gardening at the diffusion of relevant social and European values, helping citizens to overcome the narrow borders of their “private gardens” to achieve a wider vision based on the common goal of a greener Europe.

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